SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

1.1 SUMMARY:

A. Extent of each form and type of joint sealer is indicated on drawings and schedules.

B. This Section includes joint sealers for the following locations:

1. Interior joints in horizontal traffic surfaces as indicated below:

(a) Control and expansion joints in cast-in-place concrete slabs.

1.2 REFERENCES:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

AAMA
American Architectural Manufacturer's Association
2700 River Rd., Suite 118
Des Plaines, IL 60018
(312) 699-7310

AAMA 804.1	AAMA 804.1
AAMA 809.2	AAMA 809.2

ASTM
American Society for Testing and Materials
1916 Race St.
Philadelphia, PA 19103
(215) 299-5400

ASTM C 719	Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants under Cyclic Movement.
ASTM C 920	"Standard Specification for Elastomeric Joint Sealants".
ASTM C 962	Guide for Use of Elastomeric Joint Sealants.(A new standard, ASTM C 1193 "Guide for Use of Joint Sealants," is part of June 1991 ASTM Society ballot. If approved, it will replace ASTM C 790, C 804, and C 962.)
ASTM D 1751	Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

1.3 SUBMITTALS:

A. Product Data from manufacturers for each joint sealer product required, including instructions for joint preparation and joint sealer application.

B. Samples for Initial Selection Purposes: Manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available, for each product exposed to view.

C. Samples for verification purposes of each type and color of joint sealer required. Install joint sealer samples in 1/2 inch wide joints formed between two 6 inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealers.

D. Certificates from manufacturers of joint sealers attesting that their products comply with specification requirements and are suitable for the use indicated.

E. Qualification data complying with requirements specified in "Quality Assurance" article. Include list of completed projects with project name, addresses, names of Architects and Owners, plus other information specified.

F. Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

G. Product test reports for each type of joint sealers indicated, evidencing compliance with requirements specified.

H. Preconstruction field test reports indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.

1.4 SYSTEM PERFORMANCES:

A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

1.5 QUALITY ASSURANCE:

1.5.1 Installer Qualifications

A. Engage an Installer who has successfully completed within the last 3 years at least 3 joint sealer applications similar in type and size to that of this Project.

1.5.2 Single Source Responsibility for Joint Sealer Materials

A. Obtain joint sealer materials from a single manufacturer for each different product required.

1.5.3 Preconstruction Compatibility and Adhesion Testing

A. Submit samples of all materials that will contact or affect joint sealers to joint sealer manufacturers for compatibility and adhesion testing, as indicated below:

B. Use test methods standard with manufacturer to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealers to joint substrates.

1. Perform tests under normal environmental conditions that will exist during actual installation.

C. Schedule sufficient time for testing and analysis of results to prevent delay in the progress of the Work.

D. Investigate materials failing compatibility or adhesion tests and obtain joint sealer manufacturer's written recommendations for corrective measures, including use of specially formulated primers.

1.5.4 Product Testing

A. Provide comprehensive test data for each type of joint sealer based on tests conducted by a qualified independent testing laboratory on current product formulations within a 24-month period preceding date of Contractor's submittal of test results to Architect.

B. Test elastomeric sealants for compliance with requirements specified by reference to ASTM C 920. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (per ASTM C 719), low-temperature flexibility, modulus of elasticity at 100 percent strain, effects of heat aging, and effects of accelerated weathering.

1.5.5 Preconstruction Field Testing

A. Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:

1. Locate test joints where indicated or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:

(a) Each type of elastomeric sealant and joint substrate indicated.
(b) Arrange for tests to take place with Architect present.

3. Test Method: Test joint sealers by hand pull method described below:

(a) Install joint sealants in 5-feet joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.

(b) Make knife cuts as follows: A horizontal cut from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 2 inch cuts. Place a mark 1 inch from top of 2 inch piece.

(c) Use fingers to grasp 2 inch piece of sealant just above 1 inch mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

B. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.

C. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants which fail to adhere to joint substrates during testing.

1.5.6 Pre-Installation Conference

A. Conduct conference at Project site to comply with requirements of the Division-1 section covering this activity.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS:

1.7.1 Environmental Conditions

A. Do not proceed with installation of joint sealers under the following conditions:

1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturers.
2. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 deg F (4.4 deg C).
3. When joint substrates are wet due to rain, frost, condensation, or other causes.

1.7.2 Joint Width Conditions

A. Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.

1.7.3 Joint Substrate Conditions

A. Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.8 SEQUENCING AND SCHEDULING:

A. Sequence installation of joint sealers in order that material is fully cured prior to application of floor coating.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL:

2.1.1 Compatibility

A. Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience. Provide joint sealers which are fully compatable with floor coatings.

2.1.2 Colors

A. Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

2.2 ELASTOMERIC JOINT SEALANTS:

2.2.1 Elastomeric Sealant Standard

A. Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses.

2.2.2 Multi-Part Nonsag Urethane Sealant for Use T

A. Type M, Grade NS, Class 25, and complying with the following requirements for Uses:

B. Uses T, M, G, A, and, as applicable to joint substrates indicated, O.

C. Uses T, M, A, and, as applicable to joint substrates indicated, O.

2.2.3 Multi-Part Pourable Urethane Sealant for Use T

A. Type M, Grade P, Class 25, and complying with the following requirements for Uses:

1. Uses T, M, G, A, and, as applicable to joint substrates indicated, O.

2.2.4 Available Products

A. Subject to compliance with requirements, elastomeric sealants which may be incorporated in the Work include, but are not limited to, the following:

2.2.5 Products

A. Subject to compliance with requirements, provide one of the following:

2.2.5.1 Multi-Part, Pourable, Urethane Sealant for Use T:

A. "Chem-Calk 550"; Bostik Construction Product Div.

B. "Vulkem 245"; Mameco International, Inc.

C. "Vulkem 255"; Mameco International, Inc.

D. "Pourthane"; W.R. Meadows, Inc.

E. "NR-200 Urexpan"; Pecora Corp.

F. "PRC 280"; Products Research & Chemical Corp.

G. "Sikaflex 2c SL"; Sika Corp.

H. "Sonolastic Paving Joint Sealant"; Sonneborn Building Products Div., Rexnord Chemical Products Inc.

I. "THC-900"; Tremco Inc.

2.3 MISCELLANEOUS MATERIALS:

2.3.1 Primer

A. Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer-substrate tests and field tests.

2.3.2 Cleaners for Nonporous Surfaces

A. Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.

2.3.3 Masking Tape

A. Provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

3.2 PREPARATION:

3.2.1 Surface Cleaning of Joints

A. Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellants; water; surface dirt; and frost.
2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
3. Remove laitance and form release agents from concrete.

3.2.2 Joint Priming

A. Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALERS:

3.3.1 General

A. Comply with joint sealer manufacturers' printed installation in structions applicable to products and applications indicated, except where more stringent requirements apply.

3.3.2 Elastomeric Sealant Installation Standard

A. Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.

1. Provide flush joint configuration per Figure 6B in ASTM C 962,

where indicated.

2. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.4 CLEANING:

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

3.5 PROTECTION:

A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION 07900